

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 July 2004 (29.07.2004)

PCT

(10) International Publication Number
WO 2004/062961 A1

(51) International Patent Classification⁷: **B60N 2/02**,
2/06, 2/22

(21) International Application Number:
PCT/US2003/019174

(22) International Filing Date: 18 June 2003 (18.06.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/437,804 3 January 2003 (03.01.2003) US

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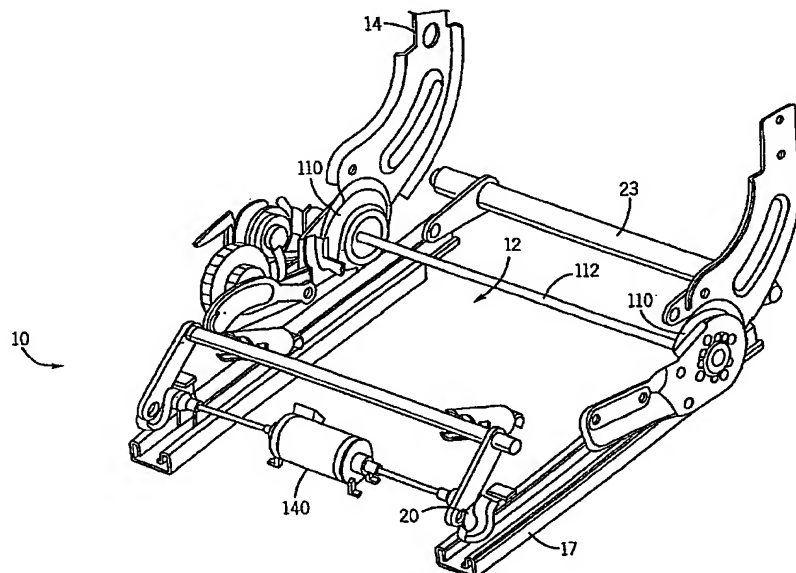
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(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC,
SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG,
US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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(54) Title: AUTOMOTIVE SEAT WITH CONTROL SYSTEM



(57) Abstract: A control system for a vehicle seat is provided that includes a seat base, a seat base motor, a seat back, a manual recliner mechanism, and a control circuit. The seat base motor is configured to move a seat base forward and backward. The manual recliner mechanism is configured to adjust an angle of inclination of the seat back. The control circuit is configured to move the seat base forward or backward in response to a change in the angle of inclination.

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JC20 Rec'd PCT/PTO 05 JUL 2005

AMENDED CLAIMS

[received by the International Bureau on 09 December 2003 (09.12.03);
claims 2, 8, 9, 13 amended, other claims unchanged]

1. A control system for a vehicle seat comprises:
a seat base motor configured to move a seat base forward and backward;
a manual recliner mechanism configured to adjust an angle of inclination of a seat back; and
a control circuit configured to move the seat base forward or backward in response to a change in the angle of inclination.
2. The control system of claim 1 wherein the control system is configured to move the seat back and the seat base at a ratio of approximately 1 degree of inclination of the seat back to between approximately 1.5 mm to approximately 3 mm of forward or backward movement of the seat base.
3. The control system of claim 1 wherein the control circuit is configured to move the seat base forward in response to a recline of the seat back and to move the seat base backward in response to an incline of the seat back.
4. The control system of claim 1 further comprising a sensor that measures a position of the seat back.
5. The control system of claim 4 wherein the sensor is a potentiometer.
6. The control system of claim 1 wherein the control circuit is configured to begin moving the seat base between approximately 0.5 seconds and approximately 2 seconds after the seat back has stopped moving.
7. The control system of claim 1 wherein the control circuit is configured to begin moving the seat base at least approximately 1 second after the seat back has stopped moving.

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8. A control system for a vehicle seat comprising:
a seat base motor configured to move a seat base forward and backward;
a manual recliner mechanism configured to adjust an angle of inclination of a seat back; and
a control circuit configured to move the seat base in response to movement of the seat back, the seat back and the seat base being moved at a ratio of approximately 1 degree of inclination of the seat back to between approximately 1 mm and approximately 4 mm of forward or backward movement of the seat base.
9. The control system of claim 8 wherein the ratio is approximately 1 degree of inclination of the seat back to approximately 1.5 mm of forward or backward movement of the seat base.
10. The control system of claim 8 wherein the control circuit is configured to move the seat base forward in response to a recline of the seat back and to move the seat base backward in response to an incline of the seat back.
11. The control system of claim 8 wherein the control circuit is configured to begin moving the seat base between approximately 0.5 seconds and approximately 2 seconds after the seat back has stopped moving.
12. A vehicle seat having a control system comprising:
a track;
a seat base coupled to the track;
a seat base motor configured to move the seat base forward and backward;
a seat back pivotally coupled to the track;
a manual recliner mechanism configured to pivot the seat back in relation to the track;

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a seat base input device configured to receive operator commands for movement of the seat base; and

a control circuit configured to receive the operator commands from the seat base input device and to control the seat base motor;

wherein the control circuit is configured to move the seat base in response to movement of the seat back; and

wherein the control circuit is configured to move the seat base alone in response to receiving a command from the seat base input device.

13. The vehicle seat of claim 12 wherein the control system is configured to move the seat base between approximately 1.5 mm and approximately 3 mm in response to each approximately 1 degree movement of the seat back.

14. The vehicle seat of claim 12 further comprising a sensor that measures a position of the seat back, wherein the control circuit is configured to move the seat base to a position that is proportional to the position of the seat back.

15. The vehicle seat of claim 14 wherein the sensor is a potentiometer.

16. The vehicle seat of claim 14 wherein the control circuit is configured to move the seat base forward by activating the seat base motor for a first amount of time and the control circuit is configured to move the seat base backward by activating the seat base motor for a second amount of time, wherein the first and second amounts of time are different.

17. The vehicle seat of claim 12 wherein the control circuit is configured to move the seat base generally forward in response to the seat back pivoting backward and to move the seat base generally backward in response to the seat back pivoting forward.

18. The vehicle seat of claim 12 wherein the control circuit is configured to begin moving the seat base between approximately 0.5 seconds

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and approximately 2 seconds after the seat back has stopped moving.

19. The vehicle seat of claim 12 wherein the manual recliner mechanism is activated by a handle.

20. The vehicle seat of claim 12 wherein the control circuit includes a microprocessor.

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WHAT IS CLAIMED IS:

1. A control system for a vehicle seat comprises:
a seat base motor configured to move a seat base forward and backward;
a manual recliner mechanism configured to adjust an angle of inclination of a seat back; and
a control circuit configured to move the seat base forward or backward in response to a change in the angle of inclination.
2. The control system of claim 1 wherein the control system is configured to move the seat base at a ratio of approximately 1 degree of inclination to between approximately 1.5 mm to approximately 3 mm of forward or backward movement of the seat back.
3. The control system of claim 1 wherein the control circuit is configured to move the seat base forward in response to a recline of the seat back and to move the seat base backward in response to an incline of the seat back.
4. The control system of claim 1 further comprising a sensor that measures a position of the seat back.
5. The control system of claim 4 wherein the sensor is a potentiometer.
6. The control system of claim 1 wherein the control circuit is configured to begin moving the seat base between approximately 0.5 seconds and approximately 2 seconds after the seat back has stopped moving.
7. The control system of claim 1 wherein the control circuit is configured to begin moving the seat base at least approximately 1 second after the seat back has stopped moving.

8. A control system for a vehicle seat comprising:
a seat base motor configured to move a seat base forward and backward;
a manual recliner mechanism configured to adjust an angle of inclination of a seat back; and
a control circuit configured to move the seat base in response to movement of the seat back, the seat base being moved at a ratio of approximately 1 degree of inclination to between approximately 1 mm and approximately 4 mm of forward or backward movement of the seat base.
9. The control system of claim 8 wherein the ratio is approximately 1 degree of inclination to approximately 1.5 mm of forward or backward movement of the seat base.
10. The control system of claim 8 wherein the control circuit is configured to move the seat base forward in response to a recline of the seat back and to move the seat base backward in response to an incline of the seat back.
11. The control system of claim 8 wherein the control circuit is configured to begin moving the seat base between approximately 0.5 seconds and approximately 2 seconds after the seat back has stopped moving.
12. A vehicle seat having a control system comprising:
a track;
a seat base coupled to the track;
a seat base motor configured to move the seat base forward and backward;
a seat back pivotally coupled to the track;
a manual recliner mechanism configured to pivot the seat back in relation to the track;

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a seat base input device configured to receive operator commands for movement of the seat base; and

a control circuit configured to receive the operator commands from the seat base input device and to control the seat base motor;

wherein the control circuit is configured to move the seat base in response to movement of the seat back; and

wherein the control circuit is configured to move the seat base alone in response to receiving a command from the seat base input device.

13. The vehicle seat of claim 12 wherein the control system is configured to move the seat base at a ratio of approximately 1 degree of inclination to between approximately 1.5 mm and approximately 3 mm of forward or backward movement of the seat back.

14. The vehicle seat of claim 12 further comprising a sensor that measures a position of the seat back, wherein the control circuit is configured to move the seat base to a position that is proportional to the position of the seat back.

15. The vehicle seat of claim 14 wherein the sensor is a potentiometer.

16. The vehicle seat of claim 14 wherein the control circuit is configured to move the seat base forward by activating the seat base motor for a first amount of time and the control circuit is configured to move the seat base backward by activating the seat base motor for a second amount of time, wherein the first and second amounts of time are different.

17. The vehicle seat of claim 12 wherein the control circuit is configured to move the seat base generally forward in response to the seat back pivoting backward and to move the seat base generally backward in response to the seat back pivoting forward.

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18. The vehicle seat of claim 12 wherein the control circuit is configured to begin moving the seat base between approximately 0.5 seconds and approximately 2 seconds after the seat back has stopped moving.

19. The vehicle seat of claim 12 wherein the manual recliner mechanism is activated by a handle.

20. The vehicle seat of claim 12 wherein the control circuit includes a microprocessor.